

That which is claimed is:

1. A robotic arm structure providing  $\theta$ - and R-motion which includes at least two links, each having a proximal end portion and a distal end portion, with the  $\theta$  motion being about a primary axis at the proximal end portion of a proximalmost of the links, the R motion proceeding radially from the primary axis, comprising:
  - 5 a first end effector pivotally mounted for rotation relative to the distal end portion of a distalmost link about an end effector axis which is parallel to the primary axis;
  - a first motor connected to rotate the first end effector about the end effector
  - 10 axis so as to provide an independent yaw (Y) motion for the first end effector;
  - a second end effector pivotally mounted for rotation relative to the distal end portion of the distalmost link about the end effector axis; and
  - a second motor connected to rotate the second end effector about the end effector axis so as to provide an independent yaw (Y) motion for the second end
  - 15 effector independent from the yaw motion of the first end effector.
2. The robotic arm structure of Claim 1 wherein the first motor and second motor are mounted on the distal end portion of the distalmost link.
3. The robotic arm structure of Claim 1 wherein the first motor and second motor are mounted adjacent the proximal end portion of the distalmost link.
- 20 4. The robotic arm structure of Claim 1 wherein the first motor and second motor are mounted within an intermediate link.
5. The robotic arm structure of Claim 1, further comprising:

an elevator structure moveable along a Z axis, the robotic arm structure being supported by the elevator.

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6. The robotic arm structure of Claim 5, further comprising:  
means for controllably tilting the elevator structure with respect to the Z  
axis.

7. The robotic arm structure of Claim 1, further comprising:  
means for controllably tilting the robotic arm structure with respect to a Z  
axis.

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